

## NATIONAL VETERINARY RESEARCH INSTITUTE; VETERINARY SERVICES IN COVID-19 RESPONSE

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### The COVID-19 pandemic

As 2019 was winding down, the world received notice of Corona virus affecting humans in Wuhan, Hubei Province of Central China. Initial manifestations of the disease demonstrated devastating effects on humans, with high potential for spread. Consequently, the global health community confronted what was going to become one of the greatest challenges in modern history.

As a key stakeholder on the frontline of disease surveillance and monitoring, diagnosis and pathogen detection, as well as prevention and control of re-emerging infectious and zoonotic diseases, the National Veterinary Research Institute (NVRI), Vom considered it important to closely follow the evolution of this zoonosis.

By January 2020, the World Health Organization (WHO) declared this respiratory disease a Public Health Emergency of International Concern (PHEIC) and several weeks later, COVID-19 was declared a pandemic.

The Severe Acute Respiratory Syndrome (SARS) disease caused by SARS Coronavirus 2 (SARS-CoV-2), subsequently named COVID-19 is thought to have originated from wildlife, including bats and likely via other wildlife intermediate hosts.<sup>1-3</sup>

Prior to the COVID-19 pandemic, zoonotic coronaviruses have been previously implicated in the outbreaks of SARS and Middle East Respiratory coronavirus (MERS) in 2002 and 2012 respectively.<sup>4</sup>

Indeed, there had been speculations within the international scientific community and global health security leaders that a pandemic of this nature was imminent. But, will this be another Spanish flu? How long has the disease been circulating in humans? Is the world better prepared to meet the challenges of this pandemic?

### Wildlife link

Wildlife-human-domestic animal connections cannot be ignored when investigating zoonotic diseases<sup>2</sup>. More than 60 per cent of known diseases identified since 1940 are zoonotic in nature, consisting of several pathogens<sup>5,6</sup>, and 70 per cent of these diseases originated from wildlife<sup>5-7</sup>. About 15 per cent of these zoonotic diseases originating from wildlife comprise viruses alone. These are the most frequently emerging deadly human pathogens documented in the recent past<sup>5,6</sup>. Emerging diseases can be novel or exotic, with either expanded geographic range, emerging in species not previously considered susceptible, or spreading in new ways and to unusual locales and communities<sup>2</sup>.



## FROM THE EDITOR

The previous issue of Vetline reported the efforts of veterinarians in the fight against COVID-19 as they carried out decontamination of animal-related premises. This issue further highlights a more specialised dynamism of veterinarians in unprecedented times.

The NVRI recently appointed a new director, Dr. Maryam Muhammad, who has a lot to offer.

As the end of 2020 draws close, we would like you to see how 'World Rabies Day 2020' was celebrated by the NVMA. This year was unique as the NVMA NEC and VCN marked World Rabies Day in Kebbi State, which did not prevent the full WRD activities in other states. Oyo state 9th Assembly also passed the 2019 Dog Amendment Bill into law and VCN got a new Ag. Registrar.

Finally, we wish to appreciate our sponsors, Zoetis A.L.P.H.A., the Vetline team and readers for a fulfilling 2020. We look forward to another exciting time together in 2021.

As always, we remain open to your input and suggestions, and especially welcome feedback on the content of Vetline. Have a Merry Christmas and a Happy New Year!

**Dr. Gloria Daminabo**  
Editor

## CONTINUED: NATIONAL VETERINARY RESEARCH INSTITUTE; VETERINARY SERVICES IN COVID-19 RESPONSE

Historically, there have been numerous instances of direct pathogen spill-over from wildlife to humans. For instance, the emergence of HIV is alleged to have resulted from hunting of non-human primates for food in central African forests, and outbreaks of Ebola haemorrhagic fever have been connected with wildlife hunting in Gabon and the Republic of Congo<sup>5,8</sup>. Rabies was found to be spread by vampire bats to cattle and humans and this has been linked with forest activities in South America<sup>5</sup>. The early human cases of SARS were associated with captive wildlife contact. It is probable that SARS corona virus-like virus of bats was spread to various species of wild animals, such as masked palm civets (*Parguma larvata*). This spread occurs either in their natural habitat or in live (wet) animal markets. Spill over into humans consequently occurs through contact with these intermediate hosts or their tissues<sup>4,9,10</sup>. Once established, human-human transmission becomes a possibility<sup>4</sup> with sometimes catastrophic consequences.

### Nigeria gets hit

Even though Africa was initially without a reported case, the epidemiology did not suggest an exclusion. It soon become evident that it was no longer a matter of 'if, but of 'when' it would hit our shores. On 27th February 2020, Nigeria reported its first case. As a key player and stakeholder in the National Public Health Security, One-Health National Committee, and several other disease prevention and control strategies of the nation, NVRI actively readied itself to take on the challenge that was inevitably coming its way.

### Veterinarians

Already, the public health structures of many nations battling the disease

were overwhelmed. History has shown that veterinarians are a highly skilled, competent and ready-to-deploy pool of professionals strengthened by past public health emergencies. In the current pandemic, veterinarians have been able to support national COVID-19 responses in the United Kingdom, USA, Spain, Italy, Germany, and Nigeria. This pandemic once again has shown the indelible relevance and capacity of the veterinary profession in solving One Health challenges, disease diagnosis, prevention and control in the country, regionally and globally.

### The National Veterinary Research Institute

Critical in the response of any nation is the need for expanded diagnostic testing and obtaining fast results. With the disease spreading across its 36 states, Nigeria's Centre for Disease Control and Prevention (NCDC) urgently needed the support of NVRI professional expertise. The NVRI, Vom has an unrivalled capacity and almost 100-year history in managing epizootics. This was demonstrated with Rinderpest, Avian Influenza outbreaks, and active surveillance for animal reservoirs for Monkeypox. Our laboratory capacity in handling huge sample volumes quickly was shown in 2006 and 2015 during the avian influenza outbreaks with the testing of more than 20,000 specimens. Thus, as part of its preparedness, NVRI core research officers held strategic meetings in anticipation and to ready itself for COVID-19.

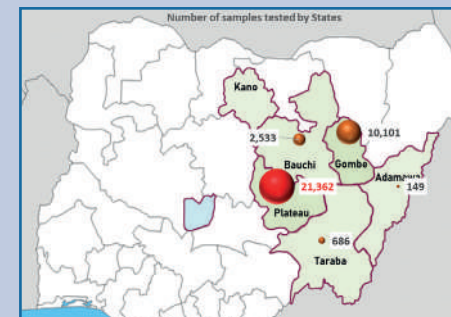
NVRI pro-activism began with a seminar on 20th February 2020, to sensitize the research community on the critical wildlife-human interface and prevention in the emergence of zoonoses as experienced with COVID-19. This was followed by a wildlife and zoonoses workshop in the

Jos Zoological Gardens. A refresher and preparatory training workshop was conducted on 6th April 2020 for personnel likely be charged to respond to the COVID-19 pandemic to prepare them professionally and mentally.

### NVRI testing human samples for COVID-19

On 9th April 2020, the NVRI Vom testing centre was activated for COVID-19 diagnosis of human samples following the visit of the NCDC. Key actors working together with the NVRI made this possible. At the time of writing this newsletter, the NVRI laboratory had tested more than 34,000 human samples for COVID-19 from Plateau, Bauchi, Gombe, Taraba and Adamawa.

See infographic below:



### NVRI provides support to other COVID-19 testing centers

As the COVID-19 infection began to spread and evidence of community transmission was felt across the country, there was need for early detection and isolation to reduce the exponential spread. More tests

required more sampling and testing materials. This resulted in scarcity of sampling materials, especially the Virus Transport Medium (VTM), preventing many states from collecting samples from suspected COVID-19 cases for testing.

NVRI came to the rescue drawing on its experience using locally produced VTM for its surveillance projects on avian influenza and Newcastle disease. The NCDC specially requested the production and supply of VTM for distribution to all locations requiring sample collection. As of August 2020, more than 250,000 units of VTM had been produced at NVRI to cover the scarcity gap created by the lockdown due to lack of importation and global scarcity of essential resources.

No sooner was NVRI laboratory activated, than its outstanding performance in boosting the country's diagnostic efforts was recognized. As a result, NVRI has participated in setting up and enhancing diagnostic capacity in other aspiring state laboratories in Nigeria. A number of international agencies demonstrated their support by donating diagnostic and biosafety materials to NVRI. Notably are the IAEA, FLI, RKI, AU and other NGOs. For this, NVRI Vom and the Federal Government of Nigeria are grateful.

### Nigeria COVID-19 Research Consortium (NCRC)

There seems to be a global consensus the COVID-19 pandemic happened because of an ill-prepared world, despite warnings from scientists. Another school of thought is that a lot

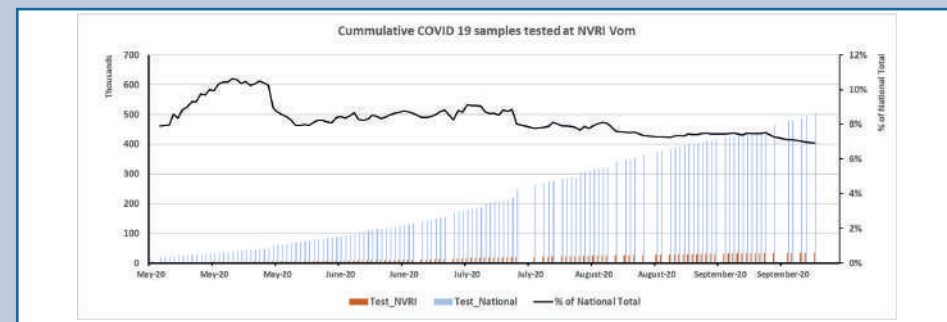
was unknown about the disease. Taken together, it means more research is required for a better understanding and control of COVID-19.

Nigeria also keyed into this global view and aligned with the WHO roadmap for research on COVID. Nigeria COVID-19 Research Consortium (NCRC) was set up and a major thematic area out of 10 that was recognized is Animal and Environmental Origin of COVID-19 and measures for control at the human-animal interface. NVRI is fully participating and coordinating this working group. Similarly, Plateau State set up a COVID-19 research committee with participation from NVRI. Internally, the NVRI Vets and Research Officers have identified various aspects of COVID-research agenda from wildlife origins, transmission in domestic animals, diagnostics, and therapeutics, and are actively writing concept notes, proposals and embarking on pilot studies.

Challenges: Shortages of consumables; insufficient coverage for hazard allowances and health insurance programs by the PTF on COVID-19; need for automation. We continue to key into the strategies of the PTF, the NCDC and all relevant health professionals, all other sector respondents and every Nigerian in declaring our commitment to this effort.

### Acknowledgement:

All those from NVRI involved in this effort: BSL3 Teams; PCR Team; VTM Teams, and Waste Management.



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# INVESTITURE OF NEWLY ELECTED NVMA KEBBI SEC

The newly elected NVMA Kebbi State Executive Council was inaugurated on 2nd September 2020, during a formal Investiture Ceremony.

The Federal Commissioner, national population commission in charge of Kebbi, Sokoto and Zamfara States, Dr. Haliru Bala Jikan-daudu decorated the SEC, and urged them to be dedicated, transparent, fair and just. While wishing the new executive members a successful tenure in office, the Commissioner assured them of his support.

Other dignitaries in attendance were Wazirin Gwandu Alh. Abdullahi; Hon. Commissioner, Kebbi State Ministry of Animal Health ably represented by the Ag. Permanent Secretary of the Ministry Dr. M. B



Kakale; and Hon. Commissioner, Civil Service Commission Alh Abdullahi Muhammad Lamba Yelwa (Dan Masanin Yauri).

Chairman of the Association, Dr. Nuhu Hussaini Shehu, appreciated the effort of His Excellency Senator Abubakar Atiku Bagudu, the Executive Governor of Kebbi State for his support to the Association, as well as his commitment towards improving livestock healthcare and production; while he called on his council and congress members to work together to ensure the effectiveness and

success of the tenure.

Members of the SEC include: Dr. Nuhu Hussaini Shehu - Chairman; Dr. Ahmad Muhammad Aliyu - Vice Chairman; Dr. Sati Emmanuel Bala - General Secretary; Dr. Umar Abubakar Alhaji - Asst. General Secretary; Dr. Abdul-Baki Muhammad Fawaz - Treasurer; Dr. Mu'awiyya Muhammad Mahuta - Financial Secretary; Dr. Abdulkadir Muhammed Bello - Welfare Director; Dr. Sani Muhammad Abdullhi - Auditor; Dr. John Ishaku Chonoko - Publicity Secretary; and Dr. Alheri Ibrahim Senchi - Ex-officio.

# WORLD RABIES DAY 2020

'End Rabies - Collaborate, Vaccinate' is the theme for this year's World Rabies Day. As 2030 gradually approaches, the question - **how close are we to achieving zero by 30?** increases.

To mark World Rabies Day 2020, the Nigerian Veterinary Medical Association carried out awareness campaigns with the media, awareness road walks and free dog rabies vaccination programmes.



Rabies Awareness Road Walk in Ogun State.

# KEBBI HOSTS NVMA NEC FOR WORLD RABIES DAY 2020

The National Executive Council of the Nigerian Veterinary Medical Association and Veterinary Council of Nigeria were hosted in Kebbi State for the World Rabies Day 2020 celebrations, by Kebbi State Government.

The event was held at the presidential banquet in Birnin Kebbi, with the Executive Governor, Commissioner of Agriculture, Commissioner of Police, and other dignitaries. There was a presentation by Professor Asabe Dzikwi-Emennaa, University of Jos.

The State Commissioner of Animal Health, Husbandry and Fisheries, Alhaji Aminu Garba Dandiga, Kebbi State Government said in his speech

that they had vaccinated 17,200 dogs out of the 40,000-dog population in the state (43%) against rabies. The state had high incidences of dog bites, some of which cases upon investigation were found to be positive for rabies. There were 87 human involvements and 79 people received post exposure prophylaxis in 2019.

The State Governor, through the Ministry of Animal Health, Husbandry and Fisheries, has been at the forefront of the fight against rabies and other diseases threatening livestock and companion animals. For this, the Governor, HE Atiku Bagudu received an award for his outstanding contributions to the fight against rabies, presented by the founder

and CEO of War Against Rabies Foundation, Dr. G.S.N. Kia.

The Governor expressed his appreciation to the national veterinary body for giving the state the hosting rights to the event. He also pledged his continued support for combating animal diseases in the state.

Finally, Gov. Atiku Bagudu flagged up the campaign for the free rabies vaccination exercise, with the President of VCN, AIG Aishatu Bajju Abubakar, and the National President of NVMA, Dr. Ibrahim Ado Shehu, carrying out the first set of vaccinations. The Veterinary Council of Nigeria also supported the free programme by providing personal protective equipment.



## THE LIVESTOCK DIAGNOSTICS APP FOR VETERINARIANS

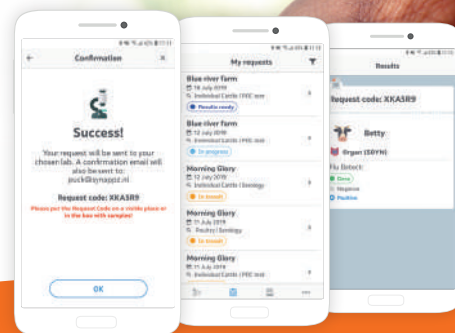
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Governor of Kebbi State, Atiku Bagudu, delivers his speech.



Governor Atiku Bagudu receives an award for his commitment to the fight against rabies.



NVMA Ag National President, Dr. Ibrahim Ado Shehu and the VCN President, AIG Aishatu Abubakar-Baju vaccinate dogs to flag up the free Rabies Vaccination Exercise.



The Emir (middle right) receives the veterinary team.





## MEET DR. MARYAM MUHAMMAD, THE NEWLY APPOINTED DIRECTOR/CHIEF EXECUTIVE OF THE NATIONAL VETERINARY RESEARCH INSTITUTE, VOM

So far we've processed more than 34,000 samples. We are not only a supporting laboratory, but also producing the virus transport medium (VTM) that most labs use. We have produced more than 250,000 vials of the VTM and distributed to COVID-19 laboratories. We are one of the best when it comes to the turnaround time for testing. Last week we were told we are third in line after the NCDC and the Lagos laboratory. And for the VTM, outside that of the WHO and other NGOs, all that have been utilized have come from NVRI.

**With the NCDC collaboration, NVRI was able to save the nation in challenging times. Are there other forms of collaboration you think can enable the NVRI to achieve more for the country?**

A committee has been set up for COVID-19 research. We are drafting proposals and have submitted some for research. We have several collaborations with both local and international partners, as well as One Health. With One Health there are so many diseases, and we are hoping that more can be done. With foreign agencies, we have collaborations with the IAEA, Fleming Fund, EU, DFID/UKAID, and also with a few universities. We are headlining REDISSE - that is Regional Disease Surveillance Systems Enhancement for West Africa - and

we are a strong part of it. We are also collaborating with the FAO and the Federal Ministry of Agriculture and Rural Development (FMARD). These are to do with communication, extension services, disease control and vaccine production.

The Fleming Fund project is about Anti-Microbial Resistance and we have been designated as the national reference laboratory for the animal health sector. We are collaborating with the FMARD to produce vaccines for the control of rabies. With UKAID we have developed an App that can be used by livestock extension agents and para-veterinarians to diagnose diseases on the field and request help so that diagnosis and management of diseases in the field are more accurate. We would hope that at the end of the project we would have been able to register 2,000 para-veterinarians that we can support with immediate help under the strict supervision of veterinarians.

We have also had a confirmation of Rabbit Haemorrhagic Disease from tests conducted at NVRI on samples from outside Plateau State. It's the first laboratory confirmation of the disease and has been reported to the CVON and OIE. We are also leading with not only diagnosis, but eventually research and development of a vaccine. We are pleased and are already seeing results

that we will be able to contain the disease.

**Aside the Institute in Vom, NVRI has outstations in other parts of the country. In what capacity do they serve the regions?**

We have 23 outstation laboratories: six of them are designated as zonal laboratories and the other 17 are state. The zonal labs coordinate the state labs that are in their region and their major function is surveillance and diagnosis. They are also the first line of disease containment, so they collaborate with state veterinary services. If they are unable to do the diagnosis, they escalate it to Vom which has more sophisticated equipment to handle it. They (outstations) also serve as distribution points for the vaccines in various states. We do not have a national spread across all 36 states yet, but we are in the six geo-political zones.

**What control plans does NVRI have for other re-emerging diseases in Nigeria, like African Swine Fever (ASF) and Canine Parvo-Viral Enteritis (CPV)?**

We have two collaborations with the EU and the University of Makerere in Uganda on African Swine Fever (ASF). There is a project called 'ASF Resist' and there are currently farmers undergoing training at our facility. The ASF collaboration is the fastest way to help us develop a vaccine, and the second is to develop biosecurity around farms and help our farmers to farm pigs in a more bio-secure environment. We are collecting samples from pig farms and pig markets so we can better understand. Vaccine development is difficult due to the nature of the virus, so for now it's for us to focus on biosecurity while in the research and development

stage for vaccine development.

We have a plan to set up a Centre of Excellence for emerging and re-emerging diseases so when working on the proposal, that will be included. So, if we are getting reports from the field that CPV is a growing concern and foreign vaccines are no longer conferring the needed immunity, we will prioritise that.

**Are there internship opportunities at NVRI for younger veterinarians seeking to build a career in related areas? How can they be accessed?**

Yes, we have many opportunities for internship because we have laboratories in the country for many diseases. Sometimes if we have too many people on the ground, we stand down applications until numbers reduce. The system is to apply with references from a university. We have small grants we can use, but mainly it has to come through a system. For example, we have the NEF-Toxicology program which we do together with a US-based organization (Africa Education Initiative, USA), and we take students for three months' toxicology training. They have internships, lectures, practicals and a thesis. When they finish, they decide if they want to take up a career in toxicology.

**What are your achievements and challenges while being in office as Director of NVRI?**

Our laboratories are currently on a reduced scale due to COVID-related restrictions. For COVID-related activities, since we were activated as a testing lab on 17th April, we have been working nonstop running samples and producing VTM.

As part of repositioning efforts of the Institute generally, I have had a

management retreat to look at what we are doing well, and areas we need to improve on while I am in office.

We want to make sure our vaccine production comes up to international standards, that our labs are accredited, and we can do research across the country. Sadly, our labs were attacked in an Anti-SARS protest, so we will have to repair them. Largely, the focus is to do well that which is within our mandate.

**The quality of vaccines produced from NVRI Vom is not in question. However, there has been a growing concern on the quality of packaging and branding. How are you addressing this challenge?**

Our priority is to improve the quantity of vaccines we are producing. We are setting up a committee that will look at our packaging and improve on it. The current vaccines have been in use for the past 40 years, so the plan is to unveil new smart packaging in the first quarter of 2021.

**What message would you like to leave for veterinarians?**

Thank you NVMA for having me. I am so impressed that Vetline is still going after so many years. We started Vetline in 1996. The fact it is still going is gratifying and I would like to say, more boost to you. Let's keep it going, let's keep growing our profession. This is something that is good for us. Let the younger ones know that something can be built from the ground up. Thank you very much. The NVMA has come a long way and I think it is to encourage you to continue. The profession needs to be projected and who can do so if not the ones benefiting from it? On the NVRI, we have mandate areas and we hope to deliver on that excellently.

## OYO ASSEMBLY PASSES DOG AMENDMENT BILL 2019 INTO LAW

The new law makes it mandatory for dogs to be vaccinated against communicable diseases including canine distemper, hepatitis, leptospirosis, parvo-viral enteritis,

para-influenza and rabies, and to obtain a Certificate of Vaccination from a qualified animal health practitioner. This will increase awareness and prevention of the transmission of rabies and other diseases. The law also mandates dog owners to ensure dogs are kept under proper control to prevent attack on unsuspecting visitors and the general public. This effort by NVMA Oyo and the Oyo 9th Assembly is highly commendable. Man's best friend - dog, should be cared for. In protecting animals, we also protect mankind.



## DR. EZENWA ISAAC NWAKONAABI APPOINTED ACTING REGISTRAR OF THE VETERINARY COUNCIL OF NIGERIA

The Honourable Minister for Agriculture approved the deployment of Dr. Nwakonaobi I. Ezenmwa, a Deputy Director with the Federal Department of Veterinary and Pest Control Services, as Acting Registrar of the Veterinary Council of Nigeria.

Congratulations to the new Registrar!



# FEEDBACK FROM VETERINARIANS ON ZOETIS A.L.P.H.A. INITIATIVE VIRTUAL TRAINING IN NIGERIA

Joshua Olorungbemi, Operations Lead (Nigeria), ZOETIS

The Zoetis A.L.P.H.A. Nigeria team has always used virtual platforms to conduct training for stakeholders in the livestock industry. But with the logistical challenges of the COVID-19 pandemic outbreak, and subsequent restrictions in movement and gatherings, these platforms had to be fully explored and their potential in reaching out maximised.

The Nigerian team organized virtual training for veterinarians, farmers and other players in the industry. There was a series of poultry disease webinars, including trainings on E. Coli, mycotoxins and salmonellosis. A variety of refresher virtual courses on poultry disease diagnosis, ELISA result interpretation and use of the Zoetis mobile app: 'LabCards'.

There were also customer-related/specific virtual sessions which were tailored to meet their needs and provide answers to specific questions. This training closed the gap that would have been created by the inability of field officers/

veterinarians to make physical visits to the farms due to COVID-19 constraints.

Here is some feedback from participants:

**Dr. Soloman Dzever of LHYW Vets Makurdi, Benue State:**

*"The training sessions were an excellent opportunity to refresh my knowledge and acquire updated knowledge about diseases and their management. I found the training extremely useful and it was wonderful as well that we didn't have to pay for them. I didn't expect to get access to such world-class training at no cost. The training made the Covid-19 lockdown period so worthwhile for me. Thank you, Zoetis."*

For Dr. Solomon Dzever, participating in the training has helped him modify his approach to the management of poultry diseases and he now appreciates the benefits of using quality products by Zoetis for livestock and companion animals. He

also requested that he should not be left out of any subsequent training.

**Dr. Ayoyimika Omolanwa, CHI GPS Tech representative:**

*"During the online training sessions we had, most of all, the biosecurity and gut health sessions were very impactful for me as an individual. We had great group discussions following each session which were professional and field experience inclined with explanations on the best interventions and solutions which the Zoetis A.L.P.H.A. initiative team also did good job on."*

**Dr. Raji Abiodun Resident Vet, Global vet Ltd.:**

*"I want to sincerely appreciate Zoetis A.L.P.H.A. for the recent online training. This is the first of its kind. It has further enriched my knowledge of disease diagnosis and possible control and treatment. I look forward to more of the training sessions about other common poultry diseases. Thank you for the great job."*



## FROM THE PRESIDENT'S DESK

**DR. IBRAHIM ADO SHEHU, AG. PRESIDENT NVMA**

Dear colleagues, it gives me great pleasure to reach our esteemed members, sponsors and readers through this edition of Vetline. The year 2020 has been a rollercoaster ride with the COVID-19 pandemic ravaging the world. The veterinary community was greatly hit by the pandemic through the loss of our dear president Prof. Bello M. Agaie, but the veterinarians in the country stood tall and provided much-needed support to help curb the pandemic.

The NEC had to make a tough decision to postpone its annual congress due to the uncertainties posed by the pandemic. But arrangements are still being made, together with the organisers and host of the EDO 2020 Congress, to give the veterinary community a bigger and better event in 2021.

The Association, despite various challenges, was able to participate in numerous programmes like World Veterinary Day, World Rabies Day, and other stakeholder meetings and seminars, both physically and virtually.

The Association, in collaboration with the Veterinary Council, is working vigorously to reshape the veterinary profession in the country and provide better working conditions and welfare for its members.

As we round off the year 2020, I implore veterinarians across the country to keep setting the bar high for the noble profession we serve and keep setting trends in all areas they find themselves.

Happy reading.